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Immunohistochemical Expression of CD10 and MMP2 in Ameloblastoma

A thesis

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the Degree of Master of Science in Oral & Maxillofacial
Pathology

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ABSTRACT

Background:

Ameloblastoma is a benign odontogenic tumor, locally invasive, with a high rate of recurrence. One of the most important steps in the growth of the tumor is the infiltration of surrounding healthy tissue by tumor cells.

The invasion phenomenon in ameloblastoma is a complicated process that needs multiple steps and interaction between cells and molecules to release mediators that have direct and indirect effects in invasion.

Immunohistochemical markers involved in the study:

CD10 is a member of the matrix metalloproteinases (MMPs) family, which degrades extracellular matrix proteins.

MMP2 is a member of the family of zinc-dependent endopeptidases. It is important in extracellular matrix remodeling because it can initiate and extend the degradation of fibrillar collagen,

Aims of the study:

1-To evaluate immunohistochemical expression of CD10 & MMP2 in different subtypes of ameloblastoma.

2-To assess the role of immunomarkers CD10 & MMP2 in the analysis of the invasive potential in ameloblastoma and the rate of recurrence.

Materials and methods:

Formalin fixed paraffin embedded tissue blocks of 30 cases of ameloblastoma were retrieved from the archives of Oral Pathology Laboratory of the Oral Diagnosis Department at the College of Dentistry/ University of Baghdad and the Laboratory of General Pathology in AL-Hussain teaching hospital in Dhi-qar and AL-Basra hospital. The study samples were cases diagnosed and treated from (2011- 2018). Then Four

micrometer thick sections were cut and mounted on positively charged slides and stained by immunohistochemical staining with poly clonal antibodies CD10 and monoclonal antibodies MMP2.

The degree of invasion in primary and recurrent ameloblastoma were represented by the expression of antibodies CD10& MMP2, which was done statically to demonstrate a relationship between immunohistochemical scores of antibodies and recurrence of ameloblastoma .

Results:

The study sample consisted of 30 cases of ameloblastoma, with 18 males and 12 females with mean age of 31.80 years . Intraosseous ameloblastoma 18 cases were follicular, 3 were plexiform and 9 were cystic ameloblastomas).Fifteen cases were primary while twelve cases were found to be recurrent .

The positive expression of CD10 in both tumor and stromal cells was higher in recurrent ameloblastoma than primary one , there was a significant differences between CD10 expression in primary and recurrent ameloblastoma ($p=0.48$ in tumor cells, $p=0.001$ in stromal cells), there was significant correlation between CD10 and recurrence of ameloblastoma ($p=0.046$ tumor cells, $p= 0.000$ stromal cells), likewise the positive expression of MMP2 was higher in both primary & recurrent cases of ameloblastoma, however there was no statically differences between MMP2 expression in primary and recurrent ameloblastomas (in tumor cells &stromal cells). No statically correlation between MMP2 and recurrence of ameloblastoma, while the correlation between antibodies CD10 &MMP2 were negative in both tumor and stromal cells expressions, but significant only in tumor cell expression ($p=0.05$).

Conclusion:

This study observed a higher expression of CD10 & MMP2 in recurrent ameloblastoma with positive expression. In stromal cells observed a significant relation with the invasiveness than epithelial cells. This guides a conclusion of more predictive role of CD10 in invasiveness of recurrent ameloblastoma.



وزارة التعليم العالي والبحث العلمي

جامعة بغداد

كلية طب الاسنان



الظهور المناعي النسيجي للمعلّمتات (CD10 & MMP2) في الورم المينائي الارومي

مقدمة بحث الى كلية طب الاسنان – جامعة بغداد كجزء من متطلبات نيل درجة ماجستير في
امراض الفم والوجه والفكين

قدمت من قبل

جيلان ضاحي حسن

بكالوريوس طب وجراحة الفم والاسنان

بإشراف

ا.م ليلي صبري ياس